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Term:

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(modify$ with URL with (HTML adj1 document$))
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Display: 10 Documents in **Display Format:** KWIC Starting with Number 1

Generate: ○ Hit List ● Hit Count ○ Side by Side ○ Image

Search   Clear   Interrupt

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DATE: Monday, November 14, 2005   Printable Copy   Create Case

Set Name	Query	Hit Count	Set Name
side by side			result set
	DB=USPT; PLUR=YES; OP=ADJ		
L3	(modify$ with URL with (HTML adj1 document$))	5	L3
L2	L1 and (URL with (html adj1 document$))	0	L2
L1	5812769.pn.	1	L1

END OF SEARCH HISTORY

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L3: Entry 1 of 5   File: USPT   Nov 25, 2003

DOCUMENT-IDENTIFIER: US 6654807 B2
TITLE: Internet content delivery network

Detailed Description Paragraph Equation (5):
http://<repeater>/<server>@proxy=<scheme>:<type> @/ <path> This URL is interpreted
when received by the repeater. The reflector then sends (B3-3) a REDIRECT reply
containing this new URL to the requesting client. The HTTP REDIRECT command allows
the reflector to send the browser a single URL to retry the request. B4. To serve a
request locally, the request is sent by the reflector to ("forwarded to") the
origin server 102. In this mode, the reflector acts as a reverse proxy server. The
origin server 102 processes the request in the normal manner (A5-A7). The reflector
then obtains the origin server's reply to the request which it inspects to
determine if the requested resource is an HTML document, i.e., whether the
requested resource is one which itself contains resource identifiers. B5. If the
resource is an HTML document then the reflector rewrites the HTML document by
modifying resource identifiers (URLs) within it, as described below. The resource,
possibly as modified by rewriting, is then returned in a reply to the requesting
client 106. If the requesting client is a repeater, the reflector may temporarily
disable any cache-control modifiers which the origin server attached to the reply.
These disabled cache-control modifiers are later re-enabled when the content is
served from the repeater. This mechanism makes it possible for the origin server to
prevent resources from being cached at normal proxy caches, without affecting the
behavior of the cache at the repeater. B6. Whether the request is reflected or
handled locally, details about the transaction, such as the current time, the
address of the requester, the URL requested, and the type of response generated,
are written by the reflector to a local log file.

US006654807B2

(12) **United States Patent**
Farber et al.

(10) Patent No.: **US 6,654,807 B2**
(45) Date of Patent: **Nov. 25, 2003**

(54) **INTERNET CONTENT DELIVERY NETWORK**

(75) Inventors: **David A. Farber**, Oak View, CA (US); **Richard E. Greer**, Red Lodge, MT (US); **Andrew D. Swart**, Westlake Village, CA (US); **James A. Balter**, Santa Barbara, CA (US)

(73) Assignee: **Cable & Wireless Internet Services, Inc.**, San Francisco, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/004,430**

(22) Filed: **Dec. 6, 2001**

(65) **Prior Publication Data**

US 2002/0049857 A1 Apr. 25, 2002

Related U.S. Application Data

(63) Continuation of application No. 09/612,598, filed on Jul. 7, 2000, which is a continuation of application No. 09/021,506, filed on Feb. 10, 1998, now Pat. No. 6,185,598.

(51) Int. Cl.⁷ G06F 15/173
(52) U.S. Cl. 709/225; 709/226; 709/229
(58) Field of Search 709/225, 226, 709/229

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(List continued on next page.)

Primary Examiner—Mehmet B. Geckil
(74) *Attorney, Agent, or Firm*—Blakely Sokoloff Taylor & Zafman LLP

(57) **ABSTRACT**

Resource requests made by clients of origin servers in a network are intercepted by reflector mechanisms and selectively reflected to other servers called repeaters. The reflectors select a best repeater from a set of possible repeaters and redirect the client to the selected best repeater. The client then makes the request of the selected best repeater. The resource is possibly rewritten to replace at least some of the resource identifiers contained therein with modified resource identifiers designating the repeater instead of the origin server.

48 Claims, 6 Drawing Sheets
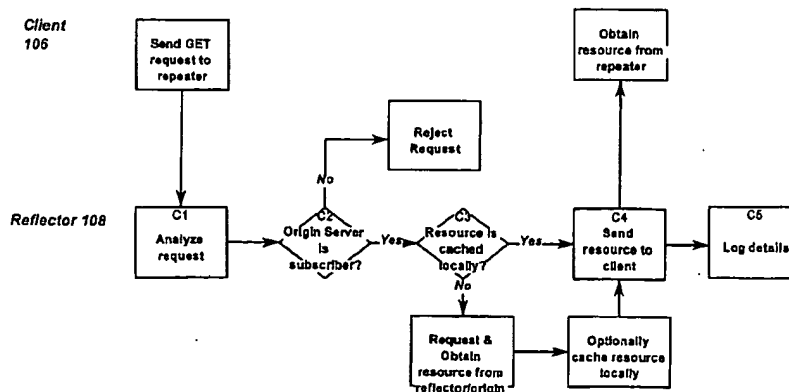
☐ ▓▓▓ Generate Collection ▓▓▓

L3: Entry 2 of 5   File: USPT   Jun 4, 2002

DOCUMENT-IDENTIFIER: US 6401077 B1
** See image for Certificate of Correction **
TITLE: Method and system for providing additional behavior through a web page

Detailed Description Text (3):
The ECE portal system can effect the intercepting of requests in several ways. In
one embodiment, the ECE portal system redirects the navigation URLs of each source
web page that it provides to a client computer. The ECE portal system redirects the
navigation URLs by modifying the HTML document so that the URLs point to the ECE
portal web site and include information for identifying the source web pages
corresponding to the URL before being redirected. When a user selects a redirected
URL, the navigation request is sent to the ECE portal system. When the ECE portal
system receives the request, it retrieves the source web page that corresponds to
the URL before being redirected and then redirects the navigation URLs in that
newly-retrieved source web page. The ECE portal system may also augment that source
web page with additional behavior before sending the web page to the client
computer. In this way, the ECE portal system can intercept the navigation requests
of a source web page and augment the source web pages before providing them to a
client computer.

Detailed Description Text (4):
The redirecting of the navigation URLs by modifying the HTML document that
represents a web page may not effect the redirecting of some URLs that are
dynamically generated when the browser processes the web page. Relative URLs that
are dynamically generated can, however, be redirected. When a relative URL is
dynamically generated, it is routed to the server of the web page in which the URL
is embedded. Since the embedding web page is provided by the ECE portal system, the
relative URLs are routed to the ECE portal system. The HTTP-request message for the
relative URL also includes the complete URL of the embedding URL (also referred to
as a "referring URL"). The ECE portal system can look at the embedding URL to
identify the source server because the identification of the source server was
included when the ECE portal system redirected the navigation URL to that web page.
The ECE portal system can then instruct the browser to redirect the relative URL to
the source server. When the ECE redirects the static navigation URLs of a web page,
it can place a special flag in each URL to indicate that the URL has been
redirected. In this way, the ECE portal system can distinguish redirected URLs that
it receives from dynamically generated relative URLs so that the relative URLs can
be identified and redirected. Two alternate ways of redirecting the navigation URLs
defer the redirecting until after URLs are dynamically generated can effect the
redirecting of all URLs. In one embodiment, the ECE portal system installs an URL
intercepting component on the client computer. Whenever the browser sends a
navigation request, the URL intercepting component receives the request and
redirects the request to the ECE portal system. Alternately, the ECE portal system
can configure the browser of the client computer so that the ECE portal web site
acts as a proxy server for the browser. When acting as a proxy server, the ECE
portal web site receives all navigation requests from the browser. With deferred
redirecting, the ECE portal system receives all navigation requests, even absolute
URLs that are generated dynamically, and can augment the requested web pages before
providing them to the client computer.

(12) **United States Patent**
Godden et al.

(10) **Patent No.:** US 6,401,077 B1
(45) **Date of Patent:** Jun. 4, 2002

(54) **METHOD AND SYSTEM FOR PROVIDING ADDITIONAL BEHAVIOR THROUGH A WEB PAGE**

(75) Inventors: **Glenn Godden; John Guthrie, both of Seattle, WA (US)**

(73) Assignee: **Network Commerce, Inc., Seattle, WA (US)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/322,963**

(22) Filed: **May 28, 1999**

(51) Int. Cl.[7] G06F 17/60; G06F 15/16; G06F 15/00; G06F 17/00; G06F 17/21

(52) U.S. Cl. 705/26; 705/27; 707/513; 709/217; 709/219

(58) Field of Search 705/1, 26, 27; 707/501, 513; 709/217, 218, 219

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Primary Examiner—Wynn Coggins
Assistant Examiner—Nicholas David Rosen
(74) Attorney, Agent, or Firm—Perkins Coie LLP

(57) **ABSTRACT**

A method and system for enabling a page description provided by a source server to perform additional behavior provided by a portal server. The page description (e.g., an HTML document) is associated with one or more items (e.g., a product). The enabling system executes at the portal server and receives a selection of the page description (e.g., a URL) from a client computer. The enabling system then retrieves from the source server the selected page description. The enabling system adds to the retrieved page description a user interface element that describes an action to be performed so that the additional behavior (e.g., placing an order for the product) can be performed for the associated item. The enabling system may also redirect to the portal server the navigation references of the retrieved page description so that all navigation based on the page description is routed through the portal server. When the enabling system intercepts these redirected navigation references, it can then retrieve and enable the referenced page description.

18 Claims, 9 Drawing Sheets
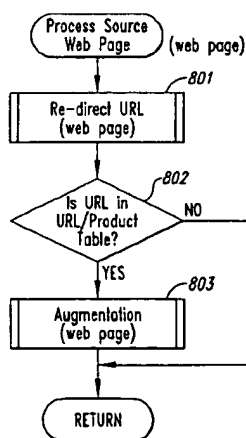
☐ Generate Collection

L3: Entry 3 of 5   File: USPT   Feb 6, 2001

DOCUMENT-IDENTIFIER: US 6185598 B1
TITLE: Optimized network resource location

Detailed Description Text (47):
B5. If the resource is an HTML document then the reflector rewrites the HTML
document by modifying resource identifiers (URLs) within it, as described below.
The resource, possibly as modified by rewriting, is then returned in a reply to the
requesting client 106.

(12) **United States Patent**
Farber et al.

(10) **Patent No.:** US 6,185,598 B1
(45) **Date of Patent:** Feb. 6, 2001

(54) **OPTIMIZED NETWORK RESOURCE LOCATION**

(75) Inventors: **David A. Farber**, Oak View, CA (US); **Richard E. Greer**, Red Lodge, MT (US); **Andrew D. Swart**, Westlake Village; **James A. Balter**, Santa Barbara, both of CA (US)

(73) Assignee: **Digital Island, Inc.**, San Francisco, CA (US)

(*) Notice: Under 35 U.S.C. 154(b), the term of this patent shall be extended for 0 days.

(21) Appl. No.: **09/021,506**

(22) Filed: **Feb. 10, 1998**

(51) Int. Cl.⁷ G06F 15/16; G06F 13/00

$$\text{Int. Cl.}^7 \quad \text{G06F 15/16; G06F 13/00}$$

(52) U.S. Cl. 709/200; 709/203; 709/226; 709/233; 709/234; 709/235; 709/236; 709/237; 709/239; 709/240; 709/241

(58) Field of Search 709/200, 203, 709/223, 224, 226, 233, 234, 235, 238, 239, 240, 241

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4,839,798	6/1989	Eguchi et al.	709/105
4,920,432	4/1990	Eggers	386/96
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Mourad et al., "Scalable Web Server Architectures", Proceedings IEEE Symposium on Computers and Communications, Jul. 1, 1997, pp. 12–16.

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Primary Examiner—Zarni Maung
Assistant Examiner—Almari Romero
(74) *Attorney, Agent, or Firm*—IP Group of Pillsbury Madison & Sutro LLP

(57) **ABSTRACT**

Resource requests made by clients of origin servers in a network are intercepted by reflector mechanisms and selectively reflected to other servers called repeaters. The reflectors select a best repeater from a set of possible repeaters and redirect the client to the selected best repeater. The client then makes the request of the selected best repeater. The resource is possibly rewritten to replace at least some of the resource identifiers contained therein with modified resource identifiers designating the repeater instead of the origin server.

27 Claims, 6 Drawing Sheets

Reflector 108
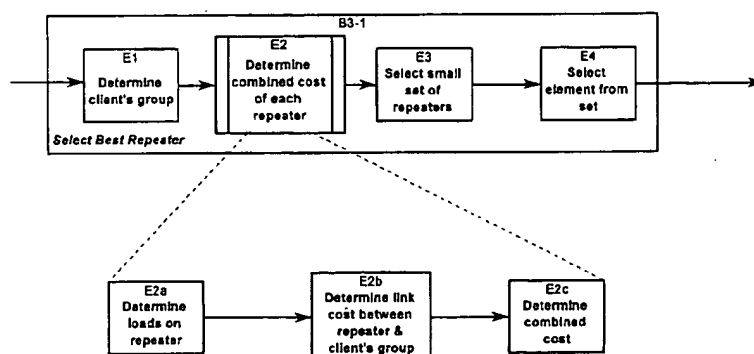
☐ Generate Collection

L3: Entry 4 of 5   File: USPT   Apr 18, 2000

DOCUMENT-IDENTIFIER: US 6052730 A
TITLE: Method for monitoring and/or modifying web browsing sessions

Abstract Text (1):
A method for transparently monitoring and/or modifying web browsing activities over
an entire computer network does not require modification of client software and can
be implemented on a single server. By rerouting HTTP requests through a centralized
gateway server, the sequence and timing of URLs accessed by individual clients are
recorded, providing the full information required to recreate a user session. The
client HTTP requests are rerouted through the gateway server by modifying URLs
within HTML documents. For each document sent to the client, any original URL which
points to another server is modified so that it points to a CGI script program on
the gateway. The gateway server then fetches the requested document from the other
server, modifies the URLs within the document, and passes it on to the client.
Thus, subsequent requests from the client will automatically be directed through
the gateway server. The method permits tracking individual web sessions and
provides valuable information about user behavior. This information can be used for
general purpose evaluation of web-based user interfaces to information systems. The
technique can also be used to modify a browsing experience by layering or stripping
hypertext content or functionality.

Brief Summary Text (13):
(e) modifying the HTML document such that original URLs within the document are
changed to new URLs, wherein the new URLs point to the first HTTP server and
include the original URLs as parameters; and

Detailed Description Text (31):
It should be noted that, the present method of routing all HTTP requests through
lamprey is almost entirely transparent to the client. The advantage of this
transparency is that users are not required to alter their natural browsing
behavior, and the browsing has the same look and feel as if it were not passing
through lamprey. Because users who view the URL addresses displayed in their
browsers will notice that they are all being directed toward the lamprey server,
the users can always detect the fact that their browsing is passing through the
lamprey server, and can easily break out of lamprey by manually entering a new URL
that points directly to a different web site. In order to alert the users to the
fact that the HTTP requests are passing through the lamprey server, the CGI script
program can modify each HTML document so that, when rendered by the client browser,
it will display to the user a notice that the session is being monitored, e.g. a
"(L)" can be prepended to the title of each document that passes through lamprey,
and a small header line containing an announcement that the session is being
tracked and a URL of the tracking server. Various other techniques can be used to
alert the user as well. Such notification is optional.

CLAIMS:

1. A method implemented on a first HTTP server machine for processing HTTP requests
from an HTTP client machine, the method comprising:

(a) receiving an HTTP request from the client;

(b) parsing the request to identify a URL parameter pointing to a second HTTP server machine, wherein the second HTTP server machine is distinct from the first HTTP server machine;

(c) retrieving from the second server machine an HTML document associated with the URL;

(d) modifying the HTML document such that original URLs within the document are changed to new URLs, wherein the new URLs point to the first HTTP server machine and include the original URLs as parameters; and

(e) sending the modified HTML document to the client.

12. A method implemented on a first HTTP gateway server machine for processing HTTP requests from an HTTP client machine, the method comprising:

(a) receiving at the first gateway server machine an HTTP request from the client;

(b) parsing the request to identify a URL parameter pointing to a third HTTP server machine;

(c) retrieving from the third server machine an HTML document associated with the URL;

(d) modifying the HTML document such that original URLs within the document are changed to new URLs, wherein the new URLs point to a second HTTP server machine and include the original URLs as parameters; and

(e) sending the modified HTML document to the client.

US006052730A

United States Patent [19]

Felciano et al.

[11] **Patent Number:** **6,052,730**

[45] **Date of Patent:** **Apr. 18, 2000**

[54] **METHOD FOR MONITORING AND/OR MODIFYING WEB BROWSING SESSIONS**

[75] Inventors: **Ramon M. Felciano**, Palo Alto; **Russ B. Altman**, Menlo Park, both of Calif.

[73] Assignee: **The Board of Trustees of the Leland Stanford Junior University**, Palo Alto, Calif.

[21] Appl. No.: **09/004,584**

[22] Filed: **Jan. 9, 1998**

Related U.S. Application Data

[60] Provisional application No. 60/035,294, Jan. 10, 1997.

[51] **Int. Cl.⁷** **G06F 15/173**
[52] **U.S. Cl.** **709/225; 709/203; 709/217; 709/219; 709/224; 709/246**
[58] **Field of Search** 395/200.93, 200.47, 395/200.49, 200.54, 200.55, 200.59, 200.76; 709/203, 217, 219, 224, 225, 246

[56] **References Cited**

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Primary Examiner—Zarni Maung
Assistant Examiner—Saleh Najjar
Attorney, Agent, or Firm—Lumen Intellectual Property Services

[57] **ABSTRACT**

A method for transparently monitoring and/or modifying web browsing activities over an entire computer network does not require modification of client software and can be implemented on a single server. By rerouting HTTP requests through a centralized gateway server, the sequence and timing of URLs accessed by individual clients are recorded, providing the full information required to recreate a user session. The client HTTP requests are rerouted through the gateway server by modifying URLs within HTML documents. For each document sent to the client, any original URL which points to another server is modified so that it points to a CGI script program on the gateway. The gateway server then fetches the requested document from the other server, modifies the URLs within the document, and passes it on to the client. Thus, subsequent requests from the client will automatically be directed through the gateway server. The method permits tracking individual web sessions and provides valuable information about user behavior. This information can be used for general purpose evaluation of web-based user interfaces to information systems. The technique can also be used to modify a browsing experience by layering or stripping hypertext content or functionality.

12 Claims, 2 Drawing Sheets